



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D2891-1

Job Sheet 171089



Part No: D2891-1

Job Qty: 10 ea

Part Name: Support 2.25



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/28/18

Job Tracking No:

Due Date: 2/2/18

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG REV B IPP C 02.11.26 Added P/O KJ IPP D 08.03.19 Re-format EC verified: DD IPP Rev:E 11.08.04 as per dwg rev.B DD verf:EC

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	10 Ea	2/1/18	2/1/18	0.00	0.00	Start Up Machining-1		KT 18-02-01
100	CNC Vertical Machining	10 pcs	2/1/18	2/1/18	0.41	8.20	HAAS1-2		KT 18-02-01
110	QC	10 pcs	2/1/18	2/1/18	0.00	0.00	QC2 Machining-1		KT 18-02-01
120	QC	10 pcs	2/1/18	2/1/18	0.00	0.00	QC8 Machining-1		KT 18-02-01
130	Crosstubes	10 pcs	2/2/18	2/2/18	0.00	0.47	Crosstubes-2		AS 18-02-05 FEB 06 2018
140	QC	10 pcs	2/2/18	2/2/18	0.00	0.00	QC3		PD 18-02-08 FEB 07 2018
170	Packaging	10 pcs	2/2/18	2/2/18	0.00	0.00	Packaging3-1		21 FEB 08 2018
180	QC21-SA	10 Ea	2/2/18	2/2/18	0.00	0.00	QC21		21 FEB 08 2018

Part Op 100 - 1-Machine as per Folio FA046

Descriptions: 130 - Per note 8 on page 1 of dwg D2891, Prep inner concave surface of support and apply 3M Scotch-Weld as per dwg. 24H of cure time. 138381 exp 11/18
170 - LOCATION : LG050

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
DSK076	D2891-1 Turning Detail	5 Ea (.5 ea)	90-Start up Operation	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	DSK076	5	5	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	2.250 Support	0.188Inches $\pm$ 0.000	0.000 0.188		
2	2.250 Support	0.240Inches $\pm$ 0.000	0.000 0.240		
3	2.250 Support	0.115Inches $\pm$ 0.000	0.000 0.115		
4	2.250 Support	0.040Inches $\pm$ 0.000	0.000 0.040		
5	2.250 Support	0.010Inches $\pm$ 0.000	0.000		

DART
AEROSPACE
S037896

Dart Aerospace Ltd.
1278 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
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Email: sales@dartaero.com
www.dartaerospace.com



Support 2.25

PART NO: D2891-1

Original Serial #: S037896

Revision:

Operation:

Change No:

Start up Operation 02/01/18

Job No: 171089

			0.010
6	2.250 Support	0.240Inches ± 0.000	0.000 0.240
7	2.250 Support	0.290Inches ± 0.000	0.000 0.290
8	2.250 Support	0.115Inches ± 0.000	0.000 0.115
9	2.250 Support	0.454Inches ± 0.000	0.000 0.454
10	2.250 Support	2.779Inches ± 0.000	0.000 2.779
11	2.250 Support	0.240Inches ± 0.000	0.000 0.240
12	2.250 Support	1.002Inches ± 0.000	0.000 1.002
13	2.250 Support	0.053Inches ± 0.000	0.000 0.053
14	2.250 Support	0.257Inches ± 0.000	0.000 0.257
15	2.250 Support	1.663Inches ± 0.000	0.000 1.663
16	2.250 Support	0.053Inches ± 0.000	0.000 0.053
17	2.250 Support	0.022Inches ± 0.000	0.000 0.022

Plex 1/29/18 5:40 AM Dart.lajeunesse.marie

DART AEROSPACE LTD		Work Order:	171089
Description: Ø2.250 Support		Part Number:	D2891-1
Inspection Dwg: D2891	Rev: B	Page 1 of 1	

FIRST ARTICLE INSPECTION DIMENSION SHEET

				Record Actual Dimensions				
Dim	Min	Max	Go/No Go Gauge	1	2	3	4	5
HAAS Section								
AA	0.188	0.193		.192	.192	.192	.192	.192
AB	0.240	0.260		.250	.250	.250	.250	.250
AC	0.115	0.150		.130	.130	.130	.130	.130
AD	0.040	0.060		.053	.053	.053	.053	.053
AE	0.010	0.020		.010	.010	.010	.010	.010
AF	0.240	0.260		.250	.250	.250	.250	.250
AG	0.290	0.310		.298	.298	.298	.298	.298
AH	0.115	0.150		.140	.140	.140	.140	.140
AI	0.454	0.474		.464	.464	.464	.464	.464
AJ	2.779	2.789		2.781	2.781	2.781	2.781	2.781
AK	0.240	0.260		.250	.250	.250	.250	.250
AL	1.002	1.042		1.034	1.034	1.034	1.034	1.034
AM	0.053	0.073		.063	.063	.063	.063	.063
AN	0.257	0.262		.259	.259	.259	.259	.259
AO	1.663	1.683		1.674	1.674	1.674	1.674	1.674
AP	0.053	0.073		.063	.063	.063	.063	.063
AQ	0.022	0.042		.032	.032	.032	.032	.032
AR								
AS								
AT								
Accept/Reject								

Measured by: J.M.N.	2018/01/31	Date:	
Audited by: JMK		Date:	18/02/05
Preliminary Approval:		Date:	

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	
B	08.04.21	Reformat	KJ/JLM	
C	12.09.26	Dwg Rev updated	KJ	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : ☐					

DART AEROSPACE LTD		Work Order:	171089
Description: Ø2.250 Support		Part Number:	D2891-1
Inspection Dwg: D2891	Rev: B	Page 1 of 1	

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AK	0.240	0.260	.250	.250	.250	.250	.250	
AL	1.002	1.042	1.034	1.034	1.034	1.034	1.034	
AM	0.053	0.073	0.063	0.063	0.063	0.063	0.063	
AN	0.257	0.262	.259	.259	.259	.259	.259	
AO	1.663	1.683	1.674	1.674	1.674	1.674	1.674	
AP	0.053	0.073	0.0625	0.0625	0.0625	0.0625	0.0625	
AQ	0.022	0.042	0.032	0.032	0.032	0.032	0.032	
AR								
AS								
AT								
Accept/Reject								

Measured by:	DAS 1 ✓	Date:	15-02-01
Audited by:	9-89 JML	Date:	18/02/05
Preliminary Approval:		Date:	

Rev	Date	Change	Revised by	Approved
A	02.12.12	New Issue	KJ/RF	
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Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

NOTES:

1) MATERIAL: 17-4 PH STAINLESS STEEL, H900 OR H925 CONDITION
MIN UTS = 170 KSI (38 HRC)
(REF DART SPEC. D6104)

2) FINISH: NONE

3) TOLERANCES: PER DART QSI 018 (REF X.XXX = ± 0.010) UNLESS OTHERWISE NOTED

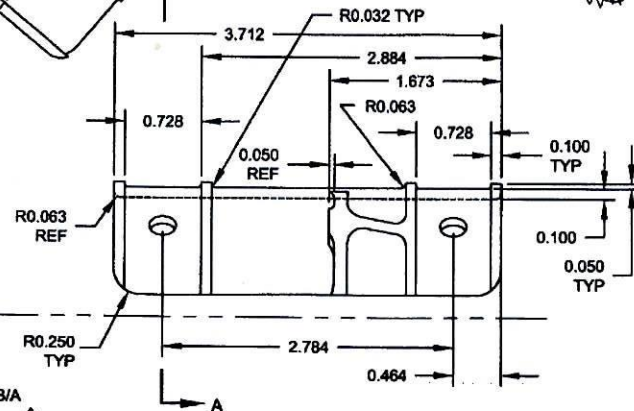
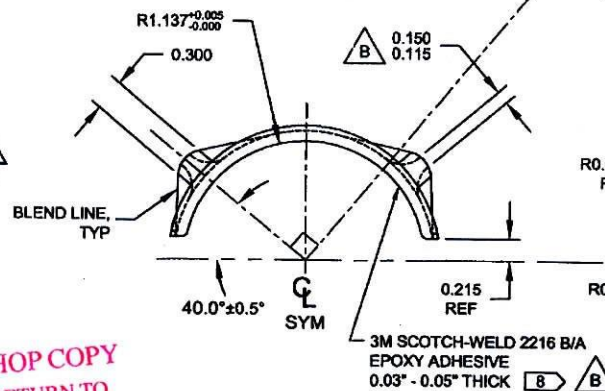
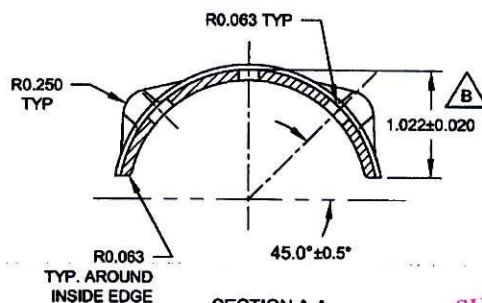
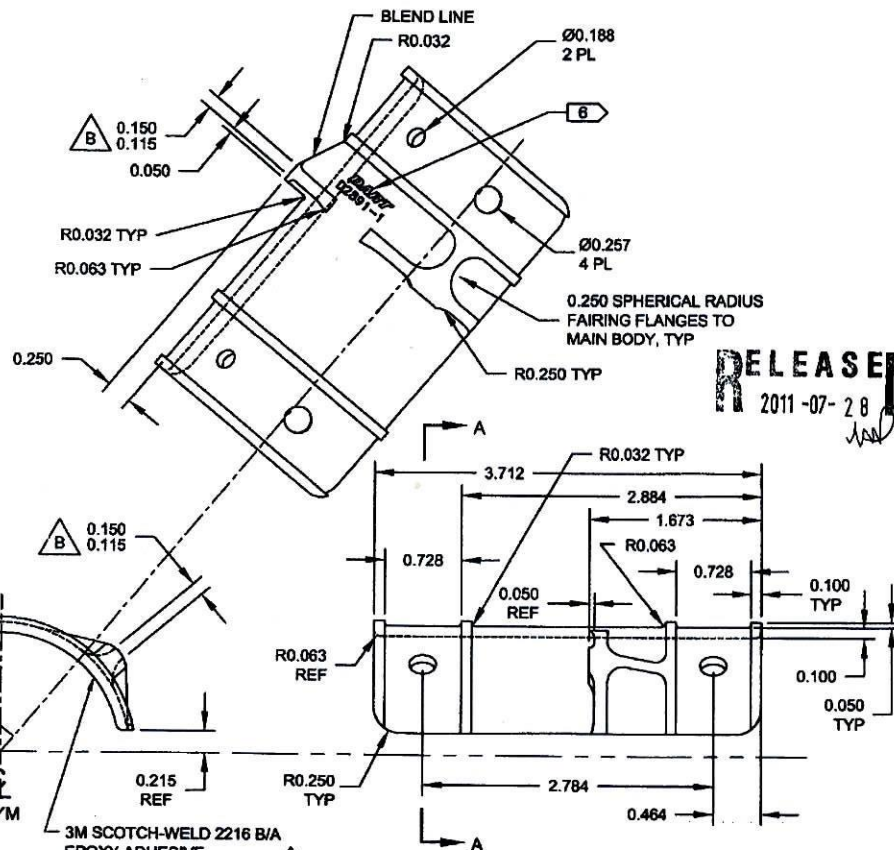
4) UNITS: INCHES UNLESS OTHERWISE NOTED

5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

6) IDENTIFICATION: DART LOGO (PER DART SUPPLIED GRAPHIC) AND PART NUMBER IN THIS AREA WITH 0.125 HIGH LETTERING 0.010-0.020 DEEP, PER DART QSI 044 6.3.

7) WEIGHT: 0.38 lb

8) FOR THE ENTIRE INNER CONCAVE SURFACE:
ABRADE SURFACE WITH 400-GRIT SANDPAPER. REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY 0.03" TO 0.05" THICK LAYER OF 3M SCOTCH-WELD 2216 B/A ADHESIVE TO MATING SURFACE OF SUPPORT. ALLOW TO CURE FOR 24 HOURS.



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WITHOUT NOTICE
WORK ORDER

D2891-1 SUPPORT

B	RMV FINISH, ADD 3M 2216, ADD H925 MAT'L OPTION, UPDATE TOLERANCE (ZN D4-1 B4-1 B6-1)	CP	11.07.15
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	11.07.15		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D2891	REV. B SHEET 1 OF 1
TITLE Ø2.250 SUPPORT	SCALE NTS

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RELEASED
2011-07-28

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐			FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		
OTHER : ☐					